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COMBINE MULTI-TYPE MODULE CARD STRUCTURE FIXED DESIGN

HP INC

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Abstract

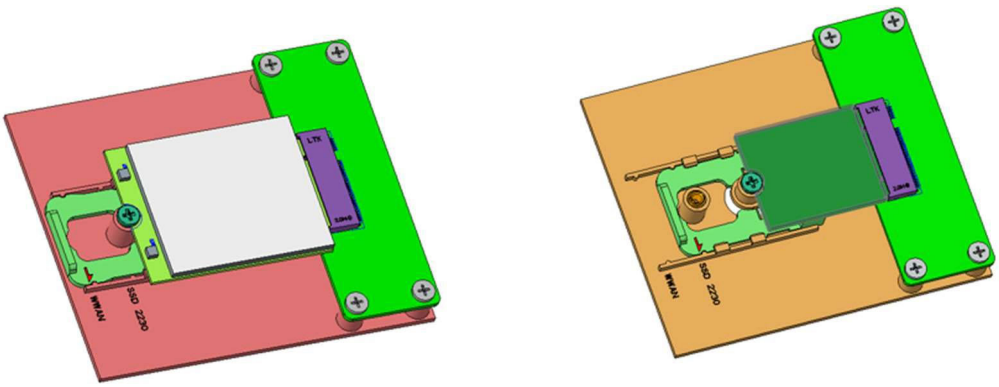
Every module need take up space in the PCBA layout and system internal. When product support multi-type module, it should provide more space in the PCBA layout, but some configuration doesn't need to support all module, so they will waste in the non-use module space. If we can leverage same space for different module that can saving space and cost. It also can help service to change module for user request. How to do change different module on the same place is our idea. We design out very clear and convenience method to resolve this problem.

Background

Since NB internal space is very crowded and different configuration need different module, but that will happen some waste of space. Like if our produce needs to support WIFI and mobile internet that will need to reserved WLAN an WWAN module space. But some people don't need to mobile internet function, they choose without WWAN card configuration and cheaper product. Current product can't base on different configuration to design and manufacture different PCBA and it should support full function and keep this space. That's why I said waste of space.
Current product design is based on different request to choose module type, but if it wants to support more function for different user request, it should support full module, like WWAN, WLAN, Main SSD and 2nd SSD. If it wants to narrow down product dimension that should be ignore some function, like if it only support WIFI function that it can ignore WWAN module of the mobile internet. If product can support more and more function that will better and better. But it usually needs large space to support or create a lot of PCBA for different configuration.

Invention Description

Our design is using a new part to control for different module fix method. It can base on different module to switch structure and fixed it. So, it can support different module assembly on the same space.We use WWAN and 2nd SSD card as examples, most request focus on WIFI only and hope can increase storage, according to this configuration need to reserve 2nd SSD space, but most product won't reserve space for 2nd SSD, it will reserve WWAN card space for mobile internet request. So, we used WWAN cardspace to replace 2nd SSD. As fig.1 Switch different mode of the WWAN and 2nd SSD. More detail as fig.2. Detail structure description. When the switch part moves to SSD mode, it can display SSD mode and lift the SSD BOSS up to correct location and support it. As fig.3 SSD mode. Another is WWAN mode, When the switch part moves to WWAN mode, it can display WWAN mode and press the SSD BOSS down and hold it to avoid interference with WWAN card. As fig.4 WWAN mode. Same mothed can use on differentmodule and switch to change.
Another very important point is every module needs to be good grounded, so BOSS and system need very good contact. Like our design, it still uses the system BOSS to fix the module instead of using other part to fix it. We just to control system BOSS location to meet different module assembly request.



Switch to WWAN module mode Switch to 2nd SSD module mode

Fig. 1 Switch different mode of the WWAN and 2nd SSD.

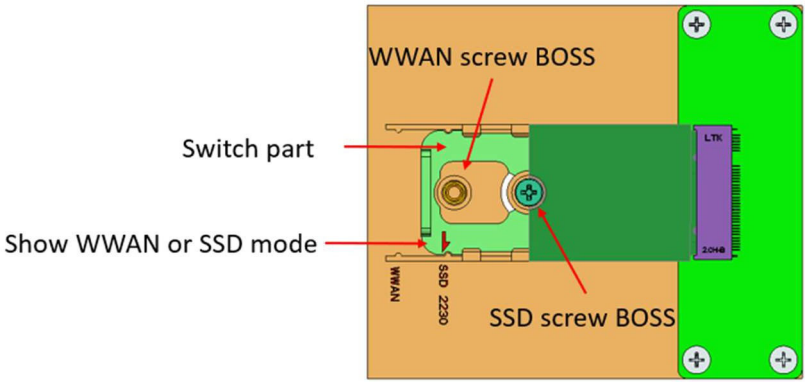


Fig. 2 Detail structure description

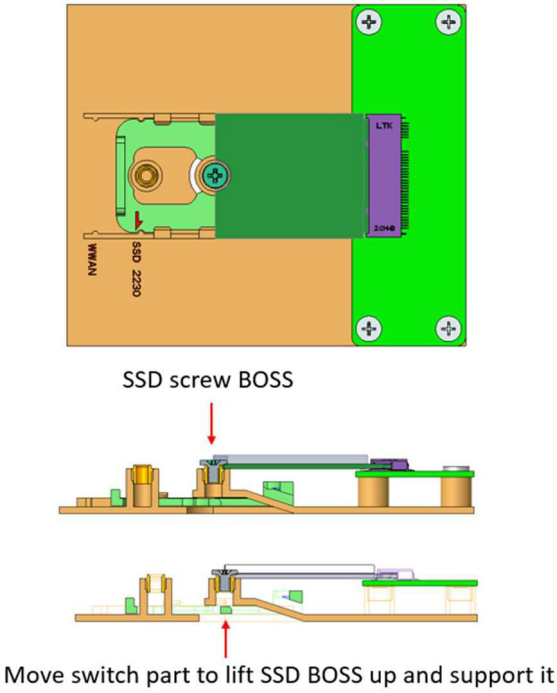


Fig. 3 SSD mode

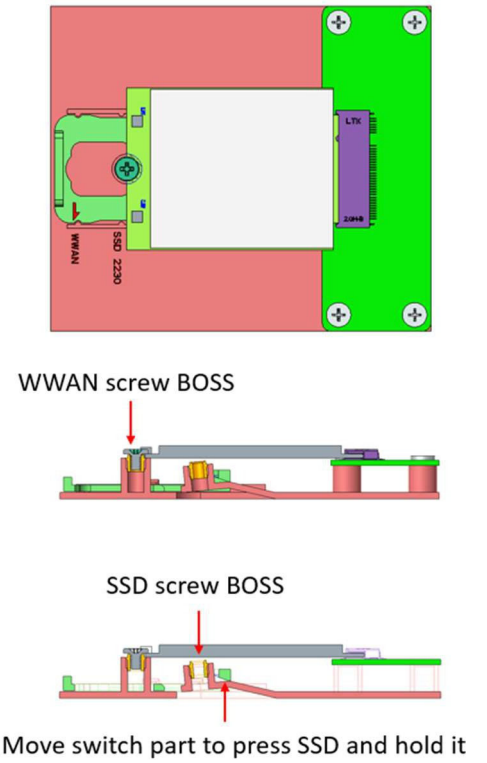


Fig. 4 Screw and structure mount design.

Advantages

- 1. Saving space and cost for different module change on the same location.
- 2. More flexible for different configuration.
- 3. No need to extra space for new structure design.
- 4. Service and user can easy and clear to do change and fixed.
- 5. Does not affect grounding and keep good contact between system and module.

Disclosed by Danny Ding/ Long Chen HP Inc.